PATENT ABSTRACTS OF JAPAN

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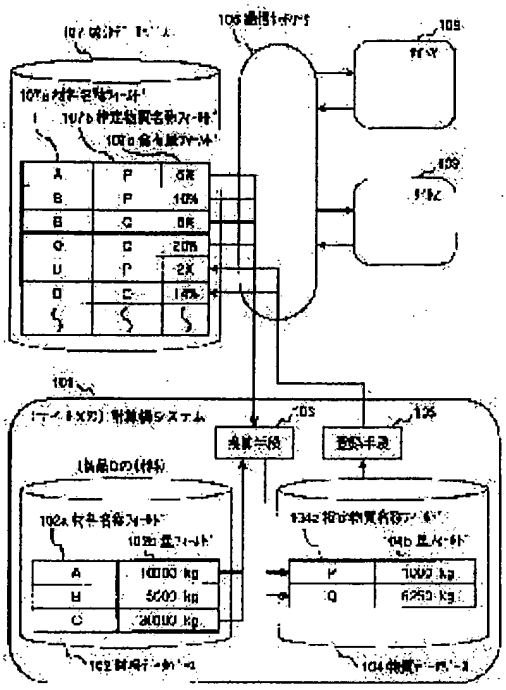
(54) COMPONENT DATABASE, METHOD FOR RETRIEVING COMPONENT DATABASE AND COMPONENT DATABASE SYSTEM

(57)Abstract:
PROBLEM TO BE SOLVED: To contribute to environmental measures by promoting the enrichment of a component database for registering the incorporated states of substances included in materials, generating adverse effects in environment and specified by environmental pollutant removal/ transfer registration(PRTR) or the like and easily managing the specified substances included in respective processes from the manufacture of a product up to its disposal.
SOLUTION: A database 107 is referred to from each of plural sites 101, 108, 109 producing various products by the name of a product D or by the names of constitutional materials A to C of the product D when the product D has not been registered yet, extracted specified substance names P, Q and their contents in materials are obtained to acquire the specified substances included in the product D and their contents (a substance database 104). When the product D has not been registered yet, the specified substances P, Q including D as a material name and their contents are registered in the component database 107. Since a product can be easily retrieved from material names to be used for the product, the system can be utilized in all sites where the product is distributed and easily managed by the PRTR or the like. Since new products can be registered by the utilization of the system, the substantiality of the component database can be promoted in accordance with chain relation between products and materials.



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CLAIMS

[Claim(s)]
[Claim 1] In the component database which comes to register the component data which contain a specification matter name and its content ratio for every material name about the specification matter detrimental to the environment included in material Input two or more material names with which a new product is constituted, and each amount used (or ratio), and the aforementioned component database is searched. From the content ratio of the specification matter which extracted all [of the corresponding material names / all the specification matter names and content ratios], and was extracted with the amount used (or ratio) for every material name of the aforementioned new product The component database characterized by having asked for the component ratio for every specification matter name contained in the product concerned, and constituting so that the component data which make the aforementioned new product a new material name may be registered.
[Claim 2] The component database characterized by registering the data in which those without the specification matter (un-corresponding) are shown per material name of the aforementioned component database in a claim 1 when the material is the non-specifying matter, and its content ratio.
[Claim 3] It is the component database characterized by waiting for registration of the component data of an unacquirable material name, and resuming registration by the new product name in a claim 1 and 2 when all the component data of two or more material names of the aforementioned new product cannot be covered.
[Claim 4] In the method of searching the component database which has registered the component data which contain a specification matter name and its content ratio for every material name through a network about the specification matter detrimental to the environment included in material Transmit two or more material names which constitute the product name of an object product, or it, and the aforementioned component data are searched. The specification matter name and its content ratio of the corresponding material name are received. from the content ratio for every specification matter of this, an object product, or the amount used (or ratio) for every material of the The search method of the component database characterized by calculating the content (or ratio) for every specification matter name contained in the product concerned, and acquiring the component data of the aforementioned object product.
[Claim 5] The component database which has registered the component data containing a specification matter name and its content ratio per material name about the specification matter detrimental to the environment included in material, In the component database system which ties with a communication network the site computer arranged to various sites, such as a manufacture place of business of a product Component database system characterized by receiving the component data of an applicable name which transmitted the name of two or more material which constitutes an object product or it from an aforementioned site computer, and were searched from the aforementioned component database.
[Claim 6] Component database system characterized by establishing a conversion means to create the list data of a specification matter name and the amount used (or ratio) contained in the product concerned in a claim 5 from the content ratio of the specification matter for every aforementioned name of component data which received to the aforementioned site computer, and the amount used (or ratio) for every aforementioned name of an object product.
[Claim 7] Component database system characterized by establishing a registration means to generate the component [name / of the new product concerned / name / material] data based on the list data based on the aforementioned conversion means, and to transmit to the aforementioned component database in a claim 6 when the aforementioned object product is a new product.
[Claim 8] The component database system characterized by to establish a registration means register the component data which compute the specification matter name and the content ratio contained in the product concerned, and make the aforementioned object product a new material name in a claim 5 from the content ratio of the specification matter for every aforementioned name of the component data searched to the computer of the aforementioned component database, and the amount used (or ratio) for every aforementioned name of an object product.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the database of the specification matter leading to environmental pollution, especially can perform data fullness quickly, and relates to the registration and the reference method of a component database which use tends to carry out.
[0002]
[Description of the Prior Art] Many of products which are circulating in the commercial scene are made using various chemicals, such as plastics, a paint, synthetic detergent, cosmetics, agricultural chemicals, and high-tech material. However, like dioxin or PCB, a part of chemical causes serious environmental pollution, and it has some which bring about influence detrimental to the ecosystem on the earth.
[0003] It is called for that the product using such a toxic substance performs suitable management through the life cycle of the manufacture, circulation, use, and abandonment. As part of that, the measure for full-scale system introduction of "nature eccrisis of environmental pollutant / move registration (PRTR)" is advanced for hundreds of kinds of specification matter with the large impact to environment (it is hereafter called the specification matter).
[0004] In PRTR, the component of the specification matter and movement of an amount are investigated through a life cycle, and it supervises strictly how much it is discharged by the atmosphere, soil, the drainage system, etc. On the occasion of this investigation, the substantial basic data (it is hereafter called component data) which specification matter is contained in various products only for which is to foundations most.
[0005] Conventionally, the data about the component in a product were appended to the product as documents. Therefore, it is in the present condition that only the partial database created according to the care force from these documents itself and these documents can be used for investigation of the specification matter. Moreover, there are databases, such as CAS which covered the structure of a chemical. However, it does not have the scientific composition of being, and carrying out, and it being special, and registering or searching the component data of the specification matter based on a product name or a material name.
[0006]
[Problem(s) to be Solved by the Invention] Generally, one product is made from two or more of other products, and the product of these each is made from two or more still more nearly another fundamental products. For example, the paint is used for the automobile. Unless the rate of the specification matter contained in this paint is known, the rate of the specification matter contained in an automobile cannot be investigated. Therefore, after the component of a fundamental product becomes clear, the component of a high order product will become clear gradually.
[0007] However, it is said that there are hundreds of thousands of kinds of products only with chemicals now, it will be more various still from now on, and the new product of varieties will appear. Therefore, the substantial component database corresponding to progress of a world by the formation of a component database by the part by the documents of product appending is difficult. In order to cover all the products containing a new product promptly and to build a component database, the structure which carries out data collection is needed directly from the manufacture place of business (it is hereafter called a manufacture site) of a product.
[0008] Moreover, in case the information on a new product is inputted into a component database to each site or a component database is searched for management by PRTR, it is common for it to be difficult to specify directly the specification matter contained in a product for hierarchization of the product mentioned above. That is, when registering a product or searching, it can specify in many cases only with two or more products which constitute the product. Especially, in each process from manufacture to abandonment, the non-expert of a chemical is concerned mostly and the component database which an information input and reference can do easily in this case is called for.
[0009] The purpose of this invention is to offer the component database with which early fullness is attained by information gathering of the product from a manufacture site in view of the situation of the above-mentioned conventional technology. Moreover, it is in offering the search method and network system of the component database with which the registration to the aforementioned component database and the specification matter about an object product can be easily searched to various sites. Thereby, the environmental cure by PRTR etc. is realized smoothly and extensively, and it ** to maintenance of earth environment.
[0010]
[Means for Solving the Problem] this invention which attains the above-mentioned purpose about the specification matter detrimental to the environment included in material It is the component database which comes to register the component data which contain a specification matter name and its content ratio per material name. Input two or more material names with which a new product is constituted, and each amount used (or ratio), and the aforementioned component database is searched. From the content ratio of the specification matter which extracted all [of the corresponding material names / all the specification matter names and content ratios], and was extracted with the amount used (or ratio) for every material name of the aforementioned new product It is characterized by having asked for the component ratio for every specification matter name contained in the product concerned, and constituting so that the component data which make the aforementioned new

product a new material name may be registered.
[0011] Moreover, per material name of the aforementioned component database, when the material is the non-specifying matter, it is characterized by registering the data in which those without the specification matter (un-corresponding) are shown, and its content ratio.
[0012] Moreover, when all the component data of two or more material names of the aforementioned new product cannot be covered, it is characterized by waiting for registration of the component data of an unacquirable material name, and resuming registration by the new product name.
[0013] In the method of searching the component database which has registered the component data containing a specification matter name and its content ratio through a network per material name about the specification matter with this invention detrimental to the environment included in material Transmit two or more material names which constitute the product name of an object product, or it, and the aforementioned component data are searched. The specification matter name and its content ratio of the corresponding material name are received. from the content ratio for every specification matter of this, an object product, or the amount used (or ratio) for every material of the It is characterized by calculating the content (or ratio) for every specification matter name contained in the product concerned, and acquiring the component data of the aforementioned object product.
[0014] The component database which has registered the component data containing a specification matter name and its content ratio per material name about the specification matter with this invention detrimental to the environment included in material, In the component database system which ties with a communication network the site computer arranged to various sites, such as a manufacture place of business of a product The name of two or more material which constitutes an object product or it from an aforementioned site computer is transmitted, and it is characterized by receiving the component data of an applicable name searched from the aforementioned component database.
[0015] Moreover, it is characterized by establishing a conversion means to create the list data of a specification matter name and the amount used (or ratio) contained in the product concerned from the content ratio of the specification matter for every aforementioned name of component data which received to the aforementioned site computer, and the amount used (or ratio) for every aforementioned name of an object product.
[0016] Moreover, when the aforementioned object product is a new product, it is characterized by establishing a registration means to generate the component [name / of the new product concerned / name / material] data based on the list data based on the aforementioned conversion means, and to transmit to the aforementioned component database.
[0017] Or it is characterized by establishing a registration means to register the component data which compute the specification matter name and content ratio which are contained in the product concerned, and make the aforementioned object product a new material name from the content ratio of the specification matter for every aforementioned name of the component data searched to the computer of the aforementioned component database, and the amount used (or ratio) for every aforementioned name of an object product.
[0018] According to this invention, since component data can register an object product name directly from each manufacture site the bottom wholly as an exotic-material name, a new product, and a variety and various products are incorporated promptly, and the self-growth of the component database can be carried out. Moreover, since registration of component data new only by specifying the material name and the amount used (or ratio) which are used for an object product is attained, registration is easy also for the non-expert of a chemical, and a substantial database is made easy.
[0019] Moreover, since the specification matter name and content of a product which a user treats can be easily searched with each process of the PLC, comprehensive management of the specification matter becomes easy.
[0020] The conceptual diagram of the component database of this invention is shown in drawing 4 , and a self-growth operation of the database which is the principle of this invention is explained to it. The center of this drawing is the component database 107. A component database is not what was not much substantial among the beginnings. For example, Material G is not registered even if the computing system 401 of the site V in drawing wants to search the component data of the material G of the self product H.
[0021] Site X begins from registering the specification matter name to contain and its component ratio as component data of Product D in illustration. The product D here is fundamental material and the specification matter names p and q etc. appear in the component in many cases directly. Next, the material D (product D) which Site Y uses for the self product E can be specified, and the component data of Product E can be registered by the specification matter names p and q etc. Hereafter, similarly, Site Z specifies Material E and registers the component data of the self product F, and Site W specifies Material F and registers the component data of Product G.
[0022] Thus, according to the hierarchical chain relation of the material which constitutes a product, a component database is substantial in self-multiplication, reference of the specification matter by the product name and material name which a user treats in connection with it becomes easy, and the environmental cure by PRTR etc. can be realized smoothly and extensively.
[0023]
[Embodiments of the Invention] One example of this invention is explained in detail according to a drawing. The block diagram of the network system which contains a component database in drawing 1 is shown. Two or more computing systems 101, 108, and 109 and component databases 107 of a site are connected through the communication networks 106, such as the Internet. A site here points out all the users that perform registration and reference to the component database 106, and is mainly a user, a governing legal authority, etc. in each process in connection with [about a manufacture place of business, research facilities, and reference] the life cycle of the abandonment from manufacture of a product about registration.
[0024] The component database 107 consists of material name field 107a, specification matter name field 107b, and content field 107c. Here, the specification matter P and Q and the component ratio of those are registered as component data of Material A, B, and C at the beginning. Below, the structure of a system and operation are explained to an example for a site X101 in detail.
[0025] Site X is manufacturing Product D and the computing system 101 possesses the materials database 102, the conversion means 103, the matter database 104, and the registration means 105. A materials database 102 consists of

material name field 102a and amount field 102b, and Material A is having 10000kg and data 5000kg and whose material C Material B is 30000kg registered as a material component of Product D here. In addition, although it is used for it in case Product D is manufactured to a materials database 102, registration of the waste or the by-product which are not contained in Product D has not been carried out.

[0026] In order to investigate the specification matter contained in Material A, B, and C, the conversion means 103 searches the specification matter name included in Material A, B, and C with reference to the component database 107 through a communication network 106, and its component ratio (content ratio in material), computes and totals the content of each specification matter contained in Product D, and writes the result in the matter database 104. The matter database 104 consists of specification matter name field 104a and amount field 104b, and the name and amount of the specification matter which are contained in Product D are registered.

[0027] The registration means 105 reads the information on the matter database 104, asks for the component ratio of the specification matter contained for Product D, and newly registers component data into the component database 107 for Product D the bottom wholly as a material name. The data of the specification matter P and Q to the material D of illustration are as a result of this registration.

[0028] Thus, registration data are substantial, when two or more sites which are making various products ask for the component data of the specification matter in a self product with reference to the registration information on the component database 107 and register the result into the component database 107. Since the use in the site which uses Material D for a self product of registration data is attained by increase, for example, registration of Material D, there is self-growth operation that the number of registration increases further.

[0029] The processing flow of a conversion means is shown in drawing 2 . The conversion means 103 chooses one item of the material name field from a materials database 102 first (s201). Next, the material name which corresponds from material name item field 107a with reference to the component database 107 through a network 106 is searched, and the content field 107c to content % is read for one item of name from the specification matter name field 107b, respectively (s202). For example, when a material name is A, the specification matter is only P of one subject name, and a content is 5%.

[0030] Next, the reduced property which hung content % on the value of amount field 102c applicable to material name item 102a of a materials database 102 is computed (s303). In the case of the material A of drawing 1 , and the specification matter P, it is set to 10000kgx5%=500kg. And the column which corresponds to the specification matter P from matter name field 104a of the matter database 104 is searched, and the above-mentioned reduced property is added and written in the numeric value of amount field 104b of an applicable column (s304). The initial value of amount field 104a newly generates the column of the name, when it is made into zero and there is no specification matter name in matter name field 104a. In the example of drawing 1 , the specification matter P and 500kg are written in first.

[0031] Next, it searches whether the other specification matter is still registered to the same material name of the component database 107 (s205). Although Material A is Matter P, in the case of Material B, the matter Q other than Matter P is registered. When there is other specification matter, the processing after s202 is repeated about the matter. Then, the processing after s201 is similarly repeated about other materials (for example, B) (s206). Consequently, 500kg in Material A and 500kg in Material B are added, and finally the specification matter P about Product D is set to 1000kg, and is registered into the matter database 104.

[0032] The processing flow of a registration means is shown in drawing 3 . First, the registration means 105 totals the numeric value of amount field 102b of a materials database 102, and obtains the total amount (here 45000kg) of Product D (s301). Next, one item (for example, P) of specification matter field 104a is chosen from the matter database 104, and the reduced property (for example, 1000kg) of amount field 104b is read (s302). And division process of the above-mentioned reduced property is carried out in the total amount (45000kg) of Product D, and content % (in the case of the specification matter P 2.2%) of the above-mentioned specification matter (P) is obtained (s303).

[0033] Next, the component database 107 is accessed, the column of Product D is added to the material name field 107a, the above-mentioned specification matter name (for example, P) is entered in specification matter field 107b of this column, and the above-mentioned content % (for example, 2.2%) is written in content field 107c (s304). The above processing of s302-s304 is repeated to all the items registered into specification matter name field 104a of the matter database 104 (s305).

[0034] An example of the component database of the product which has a hierarchical chain relation at drawing 5 is shown. For example, a product Y film consists of polyethylene and material of Paint gamma. Here, polyethylene is the non-corresponding elegance of the specification matter. Although Paint gamma consists of material of alpha thinner and beta resin, the component data of Paint gamma have not been registered. Therefore, registration of Y film is kept waiting to registration of Paint gamma. On the other hand, the component data of alpha thinner and beta resin are registered respectively. That is, if the site of Paint gamma registers an in-house product into a component database, registration of the site of Y film will also be attained at the next time.

[0035] By maintaining such a chain for a long time, the contents can be substantial and the component database 107 can raise the utility value to many sites. In the above-mentioned example, although operation of the computing system of each site was explained as one chain, if one component of the product registered in fact is added, since use in two or more sites which use this product as a material will be attained, the product newly registered as a result serves as plurality. Therefore, the component database of this invention connotes possibility of carrying out self-growth geometric-progressive, and can realize rapid fullness of a database.

[0036] Moreover, the information on the non-corresponding elegance of the specification matter is also collectively registered into the component database of this example. Thereby, on the occasion of registration of a new product, each material does not need to judge whether the specification matter is included that a site side should just input the material which constitutes a product.

[0037] In the above-mentioned example, the add function of a component database was based on the computer by the side of a site. However, it is also possible to give this function to a component database side. The block diagram of the network system by another example is shown in drawing 6 . The difference with the system of drawing 1 is that the conversion means 103, the matter database 104, and the registration means 105 are formed in the computing system 110 by the side of not a site but a component database.

[0038] Drawing 7 is a flow chart which shows operation of the system of drawing 6 . First, reference of the matter component of Product D is started from Site X (s701). That is, Product D and its amount used are transmitted to the computing system 110 by the side of a component database through a communication network 106, and the component database 107 is searched. If Product D is registered (s702), the specification matter and content ratio of Product D which it is as a result of reference are extracted, a content is computed by the conversion means 103, and it is stored in the matter database 104 (s705).
[0039] On the other hand, if Product D has not been registered into the component database 107, a message to that effect will be answered by Site X from a component database side. Then, Site X transmits the amount of the material A, B, and C used which constitutes Product D (or comparatively) (s703). The conversion means 103 searches the material A, B, and C of the component database 107 in order, from the contained specification matter name and a content ratio, it computes the content for every specification matter name contained in Product D, creates the chart, and stores it in the matter database 104 (s705). In addition, all the material A, B, and C is specification matter, and the example of illustration is a result in the case of being registered.
[0040] Next, when Product D has not been registered, the registration means 105 asks for the content ratio of the specification matter name unit of the product D stored in the matter database 104, and registers it into the component database 107 (s706). Then, the chart of the product D of the matter database 104 is transmitted to Site X, and the contents are eliminated (s707).
[0041] In not registering, in processing of s704, registration of Product D cannot do at least one of the material A, B, and C of Product D. Then, the registration means 105 is able to reboot registration processing, whenever it holds to the temporary memory which is not illustrating the information about Product D and registration of a new material is performed in the component database 107. Finally, registration of the component data which make Product D a material name immediately after registration of non-registered material information is carried out.
[0042]
[Effect of the Invention] Since component data can register an object product name directly from each manufacture site the bottom wholly as an exotic-material name, this invention incorporates a new product, and a variety and various products promptly, a component database can carry out self-growth, and the early fullness is attained.
[0043] Moreover, since the product name or the material name to be used of an object product is made into the information on reference or registration, use of a component database is easy also for the non-expert of a chemical, and a trace and management of the specification matter are attained in all the scenes of the life cycle of a product.

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TECHNICAL FIELD

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PRIOR ART

[Description of the Prior Art] Many of products which are circulating in the commercial scene are made using various chemicals, such as plastics, a paint, synthetic detergent, cosmetics, agricultural chemicals, and high-tech material. However, like dioxin or PCB, a part of chemical causes serious environmental pollution, and it has some which bring about influence detrimental to the ecosystem on the earth.

[0003] It is called for that the product using such a toxic substance performs suitable management through the life cycle of the manufacture, circulation, use, and abandonment. As part of that, the measure for full-scale system introduction of "nature discharge of environmental pollutant / move registration (PRTR)" is advanced for hundreds of kinds of specification matter with the large impact to environment (it is hereafter called the specification matter).

[0004] In PRTR, the component of the specification matter and movement of an amount are investigated through a life cycle, and it supervises strictly how much it is discharged by the atmosphere, soil, the drainage system, etc. On the occasion of this investigation, the substantial basic data (it is hereafter called component data) which specification matter is contained in various products only for which is to foundations most.

[0005] Conventionally, the data about the component in a product were appended to the product as documents. Therefore, it is in the present condition that only the partial database created according to the care force from these documents itself and these documents can be used for investigation of the specification matter. Moreover, there are databases, such as CAS which covered the structure of a chemical. However, it does not have the scientific composition of being, and carrying out, and it being special, and registering or searching the component data of the specification matter based on a product name or a material name.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since component data can register an object product name directly from each manufacture site the bottom wholly as an exotic-material name, this invention incorporates a new product, and a variety and various products promptly, a component database can carry out self-growth, and the early fullness is attained.
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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] Generally, one product is made from two or more of other products, and the product of these each is made from two or more still more nearly another fundamental products. For example, the paint is used for the automobile. Unless the rate of the specification matter contained in this paint is known, the rate of the specification matter contained in an automobile cannot be investigated. Therefore, after the component of a fundamental product becomes clear, the component of a high order product will become clear gradually.

[0007] However, it is said that there are hundreds of thousands of kinds of products only with chemicals now, it will be more various still from now on, and the new product of varieties will appear. Therefore, the substantial component database corresponding to progress of a world by the formation of a component database by the part by the documents of product appending is difficult. In order to cover all the products containing a new product promptly and to build a component database, the structure which carries out data collection is needed directly from the manufacture place of business (it is hereafter called a manufacture site) of a product.

[0008] Moreover, in case the information on a new product is inputted into a component database to each site or a component database is searched for management by PRTR, it is common for it to be difficult to specify directly the specification matter contained in a product for hierarchization of the product mentioned above. That is, when registering a product or searching, it can specify in many cases only with two or more products which constitute the product. Especially, in each process from manufacture to abandonment, the non-expert of a chemical is concerned mostly and the component database which an information input and reference can do easily in this case is called for.

[0009] The purpose of this invention is to offer the component database with which early fullness is attained by information gathering of the product from a manufacture site in view of the situation of the above-mentioned conventional technology. Moreover, it is in offering the search method and network system of the component database with which the registration to the aforementioned component database and the specification matter about an object product can be easily searched to various sites. Thereby, the environmental cure by PRTR etc. is realized smoothly and extensively, and it ** to maintenance of earth environment.

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MEANS

[Means for Solving the Problem] this invention which attains the above-mentioned purpose about the specification matter detrimental to the environment included in material It is the component database which comes to register the component data which contain a specification matter name and its content ratio per material name. Input two or more material names with which a new product is constituted, and each amount used (or ratio), and the aforementioned component database is searched. From the content ratio of the specification matter which extracted all [of the corresponding material names / all the specification matter names and content ratios], and was extracted with the amount used (or ratio) for every material name of the aforementioned new product It is characterized by having asked for the component ratio for every specification matter name contained in the product concerned, and constituting so that the component data which make the aforementioned new product a new material name may be registered.

[0011] Moreover, per material name of the aforementioned component database, when the material is the non-specifying matter, it is characterized by registering the data in which those without the specification matter (un-corresponding) are shown, and its content ratio.

[0012] Moreover, when all the component data of two or more material names of the aforementioned new product cannot be covered, it is characterized by waiting for registration of the component data of an unacquirable material name, and resuming registration by the new product name.

[0013] In the method of searching the component database which has registered the component data containing a specification matter name and its content ratio through a network per material name about the specification matter with this invention detrimental to the environment included in material Transmit two or more material names which constitute the product name of an object product, or it, and the aforementioned component data are searched. The specification matter name and its content ratio of the corresponding material name are received. from the content ratio for every specification matter of this, an object product, or the amount used (or ratio) for every material of the It is characterized by calculating the content (or ratio) for every specification matter name contained in the product concerned, and acquiring the component data of the aforementioned object product.

[0014] The component database which has registered the component data containing a specification matter name and its content ratio per material name about the specification matter with this invention detrimental to the environment included in material, In the component database system which ties with a communication network the site computer arranged to various sites, such as a manufacture place of business of a product The name of two or more material which constitutes an object product or it from an aforementioned site computer is transmitted, and it is characterized by receiving the component data of an applicable name searched from the aforementioned component database.

[0015] Moreover, it is characterized by establishing a conversion means to create the list data of a specification matter name and the amount used (or ratio) contained in the product concerned from the content ratio of the specification matter for every aforementioned name of component data which received to the aforementioned site computer, and the amount used (or ratio) for every aforementioned name of an object product.

[0016] Moreover, when the aforementioned object product is a new product, it is characterized by establishing a registration means to generate the component [name / of the new product concerned / name / material] data based on the list data based on the aforementioned conversion means, and to transmit to the aforementioned component database.

[0017] Or it is characterized by establishing a registration means to register the component data which compute the specification matter name and content ratio which are contained in the product concerned, and make the aforementioned object product a new material name from the content ratio of the specification matter for every aforementioned name of the component data searched to the computer of the aforementioned component database, and the amount used (or ratio) for every aforementioned name of an object product.

[0018] According to this invention, since component data can register an object product name directly from each manufacture site the bottom wholly as an exotic-material name, a new product, and a variety and various products are incorporated promptly, and the self-growth of the component database can be carried out. Moreover, since registration of component data new only by specifying the material name and the amount used (or ratio) which are used for an object product is attained, registration is easy also for the non-expert of a chemical, and a substantial database is made easy.

[0019] Moreover, since the specification matter name and content of a product which a user treats can be easily searched with each process of the PLC, comprehensive management of the specification matter becomes easy.

[0020] The conceptual diagram of the component database of this invention is shown in drawing 4 , and a self-growth operation of the database which is the principle of this invention is explained to it. The center of this drawing is the component database 107. A component database is not what was not much substantial among the beginnings. For example, Material G is not registered even if the computing system 401 of the site V in drawing wants to search the component data of the material G of the self product H.

[0021] Site X begins from registering the specification matter name to contain and its component ratio as component data of Product D in illustration. The product D here is fundamental material and the specification matter names p and q etc. appear in the component in many cases directly. Next, the material D (product D) which Site Y uses for the self product E can be specified, and the component data of Product E can be registered by the specification matter names p and q etc. Hereafter,

similarly, Site Z specifies Material E and registers the component data of the self product F, and Site W specifies Material F and registers the component data of Product G.
[0022] Thus, according to the hierarchical chain relation of the material which constitutes a product, a component database is substantial in self-multiplication, reference of the specification matter by the product name and material name which a user treats in connection with it becomes easy, and the environmental cure by PRTR etc. can be realized smoothly and extensively.
[0023]
[Embodiments of the Invention] One example of this invention is explained in detail according to a drawing. The block diagram of the network system which contains a component database in drawing 1 is shown. Two or more computing systems 101, 108, and 109 and component databases 107 of a site are connected through the communication networks 106, such as the Internet. A site here points out all the users that perform registration and reference to the component database 106, and is mainly a user, a governing legal authority, etc. in each process in connection with [about a manufacture place of business, research facilities, and reference] the life cycle of the abandonment from manufacture of a product about registration.
[0024] The component database 107 consists of material name field 107a, specification matter name field 107b, and content field 107c. Here, the specification matter P and Q and the component ratio of those are registered as component data of Material A, B, and C at the beginning. Below, the structure of a system and operation are explained to an example for a site X101 in detail.
[0025] Site X is manufacturing Product D and the computing system 101 possesses the materials database 102, the conversion means 103, the matter database 104, and the registration means 105. A materials database 102 consists of material name field 102a and amount field 102b, and Material A is having 10000kg and data 5000kg and whose material C Material B is 30000kg registered as a material component of Product D here. In addition, although it is used for it in case Product D is manufactured to a materials database 102, registration of the waste or the by-product which are not contained in Product D has not been carried out.
[0026] In order to investigate the specification matter contained in Material A, B, and C, the conversion means 103 searches the specification matter name included in Material A, B, and C with reference to the component database 107 through a communication network 106, and its component ratio (content ratio in material), computes and totals the content of each specification matter contained in Product D, and writes the result in the matter database 104. The matter database 104 consists of specification matter name field 104a and amount field 104b, and the name and amount of the specification matter which are contained in Product D are registered.
[0027] The registration means 105 reads the information on the matter database 104, asks for the component ratio of the specification matter contained for Product D, and newly registers component data into the component database 107 for Product D the bottom wholly as a material name. The data of the specification matter P and Q to the material D of illustration are as a result of this registration.
[0028] Thus, registration data are substantial, when two or more sites which are making various products ask for the component data of the specification matter in a self product with reference to the registration information on the component database 107 and register the result into the component database 107. Since the use in the site which uses Material D for a self product of registration data is attained by increase, for example, registration of Material D, there is self-growth operation that the number of registration increases further.
[0029] The processing flow of a conversion means is shown in drawing 2 . The conversion means 103 chooses one item of the material name field from a materials database 102 first (s201). Next, the material name which corresponds from material name item field 107a with reference to the component database 107 through a network 106 is searched, and the content field 107c to content % is read for one item of name from the specification matter name field 107b, respectively (s202). For example, when a material name is A, the specification matter is only P of one subject name, and a content is 5%.
[0030] Next, the reduced property which hung content % on the value of amount field 102c applicable to material name item 102a of a materials database 102 is computed (s303). In the case of the material A of drawing 1 , and the specification matter P, it is set to 10000kgx5%=500kg. And the column which corresponds to the specification matter P from matter name field 104a of the matter database 104 is searched, and the above-mentioned reduced property is added and written in the numeric value of amount field 104b of an applicable column (s304). The initial value of amount field 104a newly generates the column of the name, when it is made into zero and there is no specification matter name in matter name field 104a. In the example of drawing 1 , the specification matter P and 500kg are written in first.
[0031] Next, it searches whether the other specification matter is still registered to the same material name of the component database 107 (s205). Although Material A is Matter P, in the case of Material B, the matter Q other than Matter P is registered. When there is other specification matter, the processing after s202 is repeated about the matter. Then, the processing after s201 is similarly repeated about other materials (for example, B) (s206). Consequently, 500kg in Material A and 500kg in Material B are added, and finally the specification matter P about Product D is set to 1000kg, and is registered into the matter database 104.
[0032] The processing flow of a registration means is shown in drawing 3 . First, the registration means 105 totals the numeric value of amount field 102b of a materials database 102, and obtains the total amount (here 45000kg) of Product D (s301). Next, one item (for example, P) of specification matter field 104a is chosen from the matter database 104, and the reduced property (for example, 1000kg) of amount field 104b is read (s302). And division process of the above-mentioned reduced property is carried out in the total amount (45000kg) of Product D, and content % (in the case of the specification matter P 2.2%) of the above-mentioned specification matter (P) is obtained (s303).
[0033] Next, the component database 107 is accessed, the column of Product D is added to the material name field 107a, the above-mentioned specification matter name (for example, P) is entered in specification matter field 107b of this column, and the above-mentioned content % (for example, 2.2%) is written in content field 107c (s304). The above processing of s302-s304 is repeated to all the items registered into specification matter name field 104a of the matter database 104 (s305).
[0034] An example of the component database of the product which has a hierarchical chain relation at drawing 5 is shown. For example, a product Y film consists of polyethylene and material of Paint gamma. Here, polyethylene is the

non-corresponding elegance of the specification matter. Although Paint gamma consists of material of alpha thinner and beta resin, the component data of Paint gamma have not been registered. Therefore, registration of Y film is kept waiting to registration of Paint gamma. On the other hand, the component data of alpha thinner and beta resin are registered respectively. That is, if the site of Paint gamma registers an in-house product into a component database, registration of the site of Y film will also be attained at the next time.

[0035] By maintaining such a chain for a long time, the content can be substantial and the component database 107 can raise the utility value to many sites. In the above-mentioned example, although operation of the computing system of each site was explained as one chain, if one component of the product registered in fact is added, since use in two or more sites which use this product as a material will be attained, the product newly registered as a result serves as plurality. Therefore, the component database of this invention connotes possibility of carrying out self-growth geometric-progressive, and can realize rapid fullness of a database.

[0036] Moreover, the information on the non-corresponding elegance of the specification matter is also collectively registered into the component database of this example. Thereby, on the occasion of registration of a new product, each material does not need to judge whether the specification matter is included that a site side should just input the material which constitutes a product.

[0037] In the above-mentioned example, the add function of a component database was based on the computer by the side of a site. However, it is also possible to give this function to a component database side. The block diagram of the network system by another example is shown in drawing 6 . The difference with the system of drawing 1 is that the conversion means 103, the matter database 104, and the registration means 105 are formed in the computing system 110 by the side of not a site but a component database.

[0038] Drawing 7 is a flow chart which shows operation of the system of drawing 6 . First, reference of the matter component of Product D is started from Site X (s701). That is, Product D and its amount used are transmitted to the computing system 110 by the side of a component database through a communication network 106, and the component database 107 is searched. If Product D is registered (s702), the specification matter and content ratio of Product D which it is as a result of reference are extracted, a content is computed by the conversion means 103, and it is stored in the matter database 104 (s705).

[0039] On the other hand, if Product D has not been registered into the component database 107, a message to that effect will be answered by Site X from a component database side. Then, Site X transmits the amount of the material A, B, and C used which constitutes Product D (or comparatively) (s703). The conversion means 103 searches the material A, B, and C of the component database 107 in order, from the contained specification matter name and a content ratio, it computes the content for every specification matter name contained in Product D, creates the chart, and stores it in the matter database 104 (s705). In addition, all the material A, B, and C is specification matter, and the example of illustration is a result in the case of being registered.

[0040] Next, when Product D has not been registered, the registration means 105 asks for the content ratio of the specification matter name unit of the product D stored in the matter database 104, and registers it into the component database 107 (s706). Then, the chart of the product D of the matter database 104 is transmitted to Site X, and the content is eliminated (s707).

[0041] In not registering, in processing of s704, registration of Product D cannot do at least one of the material A, B, and C of Product D. Then, the registration means 105 is able to reboot registration processing, whenever it holds to the temporary memory which is not illustrating the information about Product D and registration of a new material is performed in the component database 107. Finally, registration of the component data which make Product D a material name immediately after registration of non-registered material information is carried out.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The block diagram of the component database system by one example of this invention.
[Drawing 2] The flow chart which shows operation of the conversion means of the system of drawing 1 .
[Drawing 3] The flow chart which shows operation of the registration means of the system of drawing 1 .
[Drawing 4] Explanatory drawing showing a self-growth operation of the component database of this invention.
[Drawing 5] Explanatory drawing showing an example of the component database of the product which has a hierarchical chain relation.
[Drawing 6] The block diagram of the component database system by another example of this invention.
[Drawing 7] The flow chart which shows operation of the system of drawing 6 .
[Description of Notations]
101,108,109 [-- A conversion means, 104 / -- A matter database, 105 / -- A registration means, 106 / -- A communication network, 107 / -- A component database, 110 / -- Computing system (component database side).] -- A computing system (site side), 102 -- A materials database, 103

[Translation done.]

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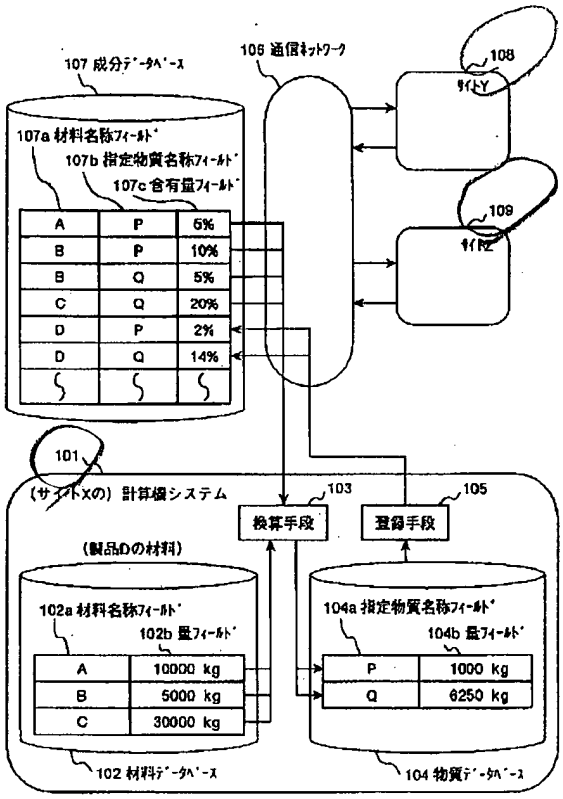
DRAWINGS

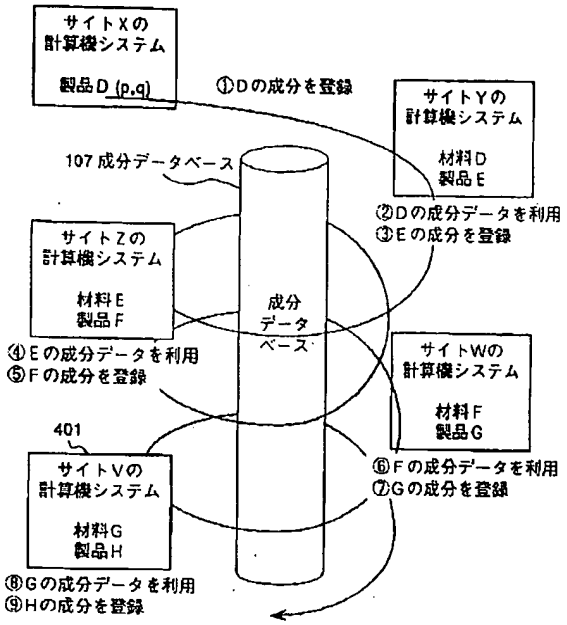
[Drawing 1]

図 1



[Drawing 4]

図 4



[Drawing 2]

図 2

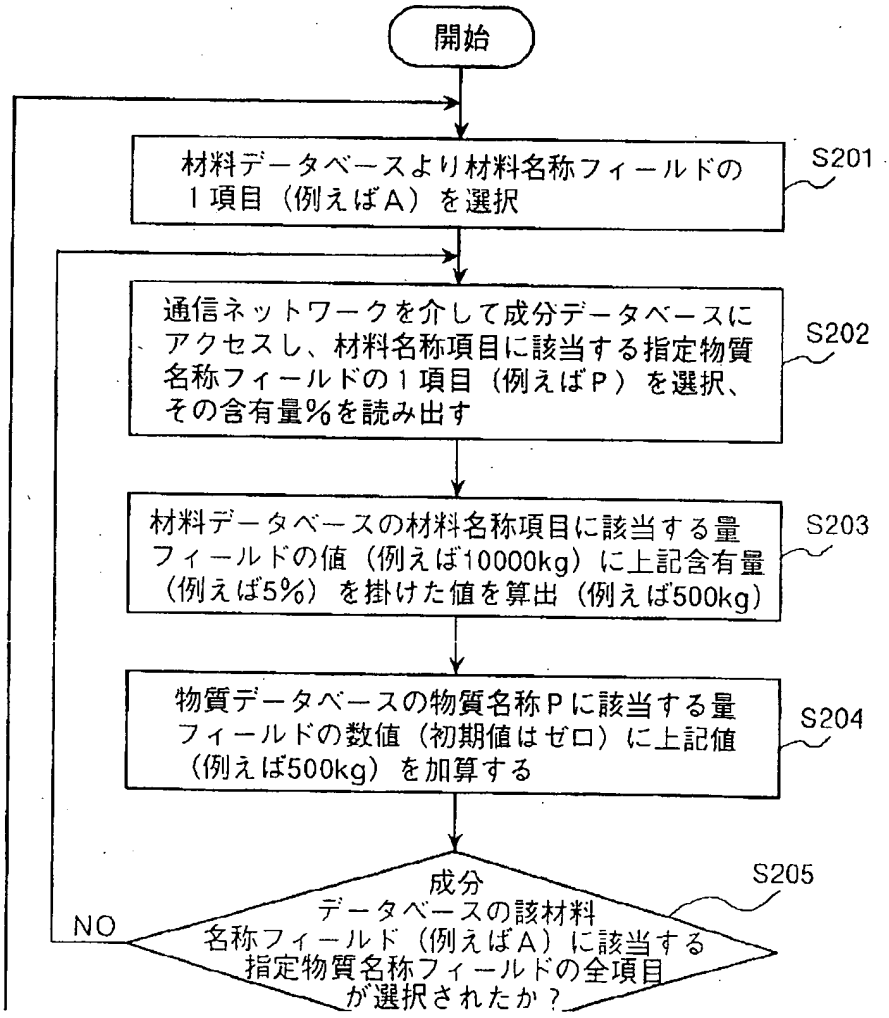
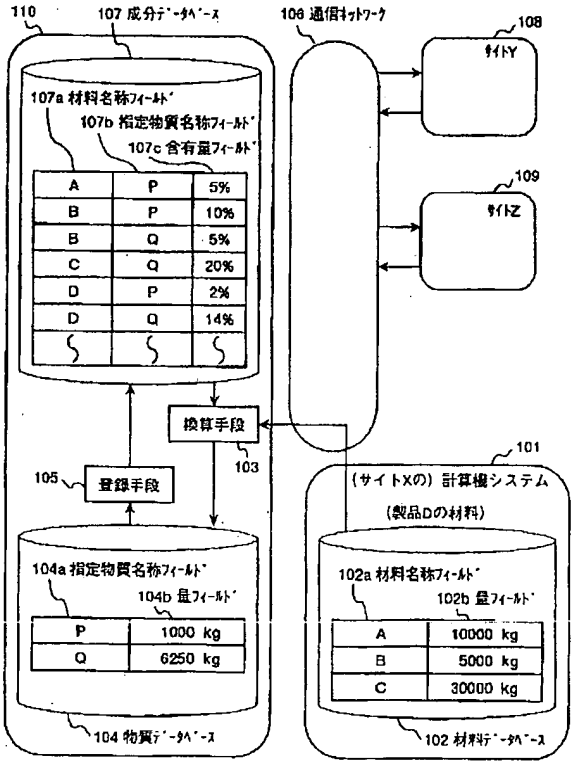


図　5

製品名	含有される材料名	指定物質	含有率(%)
αシンナー	トルエン	トルエン	61
	キシレン	キシレン	16
	メチルイソブチルケトン	非該当	13
	イソプロパノール	非該当	10
β樹脂	ポリマー	シクロペンタジエン	80
塗料γ	αシンナー	?	24
	β樹脂	?	34
Yフィルム	ポリエチレン	非該当	98
	塗料γ	?	2

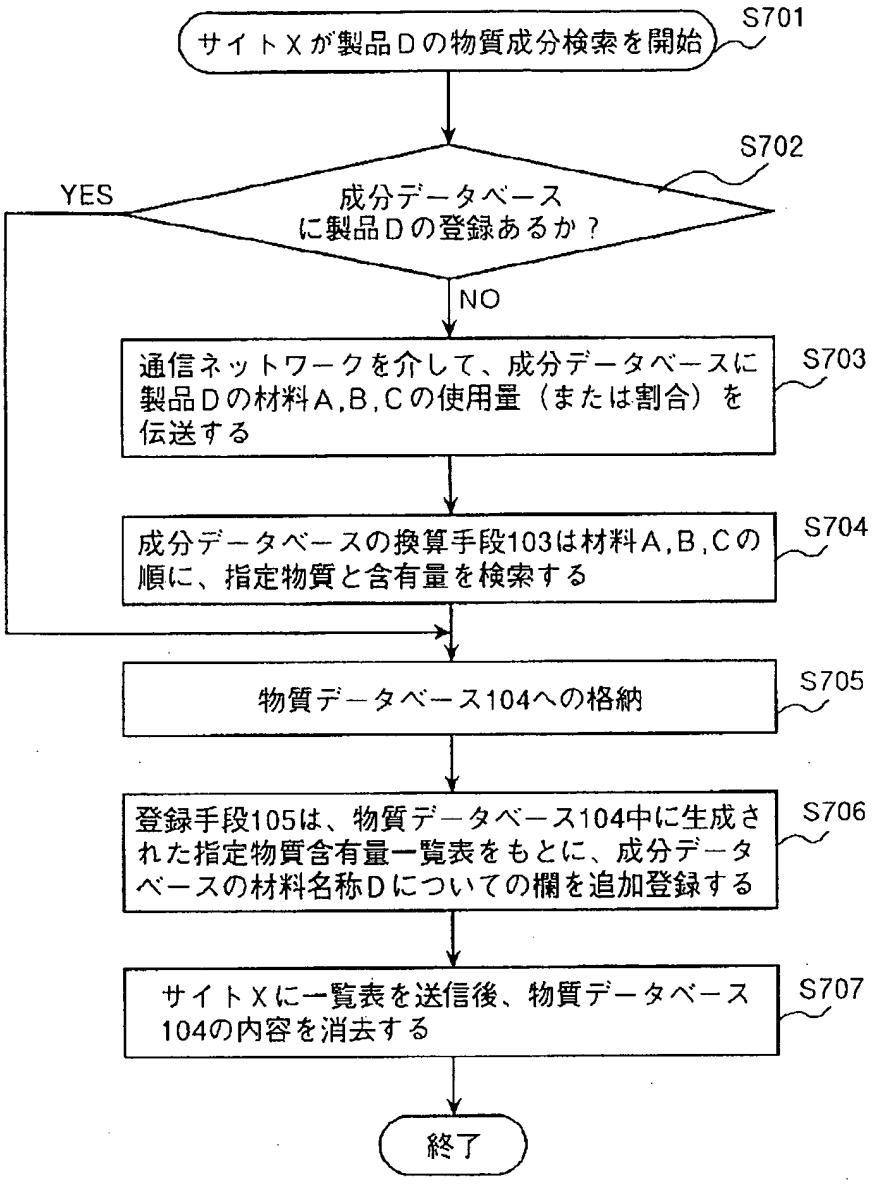
[Drawing 6]

図　6



[Drawing 7]

図　7



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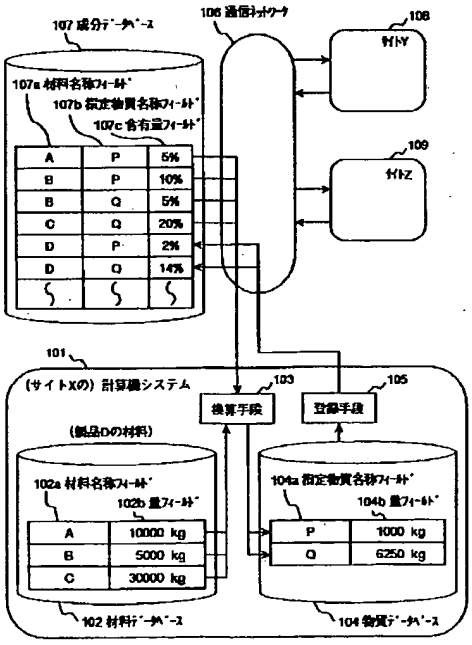
(54)【発明の名称】　成分データベース、成分データベースの検索方法および成分データベースシステム

(57)【要約】
【課題】材料中に含まれ、環境に悪影響をもたらすＰＲＴＲ等での指定物資の含有状況を登録する成分データベースの充実を促進し、製品の製造から廃棄の各過程で含有指定物質の管理を容易にし、環境対策に資する。
【解決手段】様々な製品を作成している複数のサイト１０１（１０８，１０９）から製品Ｄの名称、製品Ｄが未登録の場合はその構成材料Ａ、Ｂ、Ｃの名称でデータベース１０７を参照し、抽出された指定物質名Ｐ、Ｑと材料中の含有比率を得て、製品Ｄに含まれる指定物質と含有量を取得する（物質データベース１０４）。また、製品Ｄが未登録の場合、Ｄを材料名として含有する指定物質Ｐ、Ｑとその含有比を成分データベース１０７に登録する。製品に使用する材料名などから簡単に検索できるので、製品の流通するあらゆるサイトで活用でき、ＰＲＴＲ等での管理が容易になる。また、利用を通じて新製品の登録が可能になるので、製品と材料の連鎖関係に適応して成分データベースの充実を促進できる。

図　1



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【特許請求の範囲】

【請求項1】　材料中に含まれる環境に有害な指定物質について、材料名ごとに指定物質名とその含有比を含む成分データを登録してなる成分データベースにおいて、新製品を構成する複数の材料名と各々の使用量（または比率）を入力して前記成分データベースを検索し、該当する材料名の指定物質名とその含有比のすべてを抽出し、前記新製品の材料名ごとの使用量（または比率）と抽出された指定物質の含有比から、当該製品に含まれる指定物質名ごとの成分比を求めて、前記新製品を新たな材料名とする成分データを登録するように構成したことを特徴とする成分データベース。

【請求項2】　請求項1において、

前記成分データベースの材料名単位に、その材料が非指定物質である場合に指定物質なし（非該当）を示すデータとその含有比を登録することを特徴とする成分データベース。

【請求項3】　請求項1また2において、

前記新製品の複数の材料名の全ての成分データを網羅できないときは、取得できない材料名の成分データの登録を待って、その新製品名による登録を再開することを特徴とする成分データベース。

【請求項4】　材料中に含まれる環境に有害な指定物質について、材料名ごとに指定物質名とその含有比を含む成分データを登録している成分データベースをネットワークを介して検索する方法において、

対象製品の製品名またはそれを構成する複数の材料名を送信して前記成分データを検索し、該当する材料名の指定物質名とその含有比を受信し、この指定物質ごとの含有比と対象製品またはその材料ごとの使用量（または比率）から、当該製品に含まれる指定物質名ごとの含有量（または比率）を求めて、前記対象製品の成分データを取得することを特徴とする成分データベースの検索方法。

【請求項5】　材料中に含まれる環境に有害な指定物質について、材料名単位に指定物質名とその含有比を含む成分データを登録している成分データベースと、製品の製造事業所など様々なサイトに配置されたサイト計算機を通信ネットワークで結ぶ成分データベースシステムにおいて、

前記サイト計算機から対象製品またはそれを構成する複数の材料の名称を送信し、前記成分データベースから検索された該当名称の成分データを受信することを特徴とする成分データベースシステム。

【請求項6】　請求項5において、

前記サイト計算機に、受信した成分データの前記名称ごとの指定物質の含有比と対象製品の前記名称ごとの使用量（または比率）から、当該製品に含まれる指定物質名と使用量（または比率）の一覧データを作成する換算手段を設けたことを特徴とする成分データベースシステム。

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【請求項7】　請求項6において、

前記対象製品が新製品の場合に、前記換算手段による一覧データを基に当該新製品の名称を材料名とする成分データを生成して前記成分データベースに送信する登録手段を設けたことを特徴とする成分データベースシステム。

【請求項8】　請求項5において、

前記成分データベースの計算機に、検索した成分データの前記名称ごとの指定物質の含有比と対象製品の前記名称ごとの使用量（または比率）から、当該製品に含まれる指定物質名と含有比を算出し、前記対象製品を新たな材料名とする成分データを登録する登録手段を設けたことを特徴とする成分データベースシステム。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は環境汚染の原因となる指定物質のデータベースに係り、特にデータ充実が迅速に行え、利用のし易い成分データベースの登録及び検索方式に関する。

【0002】

【従来の技術】市場に流通している製品の多くはプラスチック、塗料、合成洗剤、化粧品、農薬、ハイテク材など、さまざまな化学物質を利用して作られる。しかし、化学物質の一部はダイオキシンやＰＣＢ等のように、深刻な環境汚染を引き起こし、地球上の生態系に有害な影響をもたらすものがある。

【0003】このような有害物質を利用する製品は、その製造、流通、使用、廃棄のライフサイクルを通じて、適切な管理を行うことが求められている。この一貫として、「環境汚染物質排出・移動登録（ＰＲＴＲ）」の本格的な制度導入への取り組みが、環境へのインパクトの大きい数百種類の指定物質（以下、指定物質と呼ぶ）を対象に進められている。

【0004】ＰＲＴＲでは、指定物質の成分と量の移動をライフサイクルを通して調査し、大気、土壌、水系等にどのていど排出されるかを厳密に監視する。この調査に際しては、様々な製品にどの指定物質がどれだけ含まれるかという基礎データ（以下、成分データと呼ぶ）の充実が最も基本になる。

【0005】従来、製品中の成分に関するデータは製品に書類として添付されていた。従って、指定物質の調査にはこの書類そのものか、この書類から手入力により作成した部分的なデータベースしか利用できない現状にある。また、化学物質の構造を網羅したＣＡＳなどのデータベースがある。しかし、学術的ないし専門的であり、製品名や材料名に基づいて指定物質の成分データを登録したり、検索したりする構成とはなっていない。

【0006】

【発明が解決しようとする課題】一般に、一つの製品は

複数の他の製品から作られ、それら個々の製品はさらに別の複数の基礎的製品から作られる。例えば、自動車には塗料が使われている。この塗料中に含まれる指定物質の割合が分からないと、自動車に含まれる指定物質の割合を調査できない。従って、基礎的な製品の成分が明らかになってから、徐々に高次の製品の成分が判明していくことになる。

【０００７】しかし、現在、化学薬品だけで数十万種類の製品があると言われ、今後ますます多様で多種類の新製品が登場してくる。従って、製品添付の書類による一部での成分データベース化では、世の中の進展に応じた成分データベースの充実は困難である。新製品を含む全ての製品をいち早く網羅して成分データベースを構築するためには、製品の製造事業所（以下、製造サイトと呼ぶ）から直接、データ収集するしくみが必要になる。

【０００８】また、各サイトで成分データベースへ新製品の情報を入力したり、ＰＲＴＲによる管理のために成分データベースを検索する際、上述した製品の階層化のために、製品中に含まれる指定物質を直接、指定するのが困難なことが多い。つまり、製品を登録したり検索する場合に、その製品を構成する複数の製品でしか指定できない場合が多い。特に、製造から廃棄までの各プロセスでは、化学物質の非専門家が多く関わり、かかる場合に容易に情報入力や検索のできる成分データベースが求められている。

【０００９】本発明の目的は、上記した従来技術の状況に鑑み、製作現場からの製品の情報収集で早期充実が可能になる成分データベースを提供することにある。また、前記成分データベースへの登録や、対象製品についての指定物質の検索を種々のサイトで容易に行える成分データベースの検索方法やネットワークシステムを提供することにある。これにより、ＰＲＴＲ等による環境対策を円滑かつ全面的に実現し、地球環境の保全に資するものである。

【００１０】

【課題を解決するための手段】上記目的を達成する本発明は、材料中に含まれる環境に有害な指定物質について、材料名単位に指定物質名とその含有比を含む成分データを登録してなる成分データベースであって、新製品を構成する複数の材料名と各々の使用量（または比率）を入力して前記成分データベースを検索し、該当する材料名の指定物質名とその含有比のすべてを抽出し、前記新製品の材料名ごとの使用量（または比率）と抽出された指定物質の含有比から、当該製品に含まれる指定物質名ごとの成分比を求めて、前記新製品を新たな材料名とする成分データを登録するように構成したことを特徴とする。

【００１１】また、前記成分データベースの材料名単位に、その材料が非指定物質である場合に指定物質なし（非該当）を示すデータとその含有比を登録することを

特徴とする。

【００１２】また、前記新製品の複数の材料名の全ての成分データを網羅できないときは、取得できない材料名の成分データの登録を待って、その新製品名による登録を再開することを特徴とする。

【００１３】本発明は、材料中に含まれる環境に有害な指定物質について、材料名単位に指定物質名とその含有比を含む成分データを登録している成分データベースをネットワークを介して検索する方法において、対象製品の製品名またはそれを構成する複数の材料名を送信して前記成分データを検索し、該当する材料名の指定物質名とその含有比を受信し、この指定物質ごとの含有比と対象製品またはその材料ごとの使用量（または比率）から、当該製品に含まれる指定物質名ごとの含有量（または比率）を求めて、前記対象製品の成分データを取得することを特徴とする。

【００１４】本発明は、材料中に含まれる環境に有害な指定物質について、材料名単位に指定物質名とその含有比を含む成分データを登録している成分データベースと、製品の製造事業所など様々なサイトに配置されたサイト計算機を通信ネットワークで結ぶ成分データベースシステムにおいて、前記サイト計算機から対象製品またはそれを構成する複数の材料の名称を送信し、前記成分データベースから検索された該当名称の成分データを受信することを特徴とする。

【００１５】また、前記サイト計算機に、受信した成分データの前記名称ごとの指定物質の含有比と対象製品の前記名称ごとの使用量（または比率）から、当該製品に含まれる指定物質名と使用量（または比率）の一覧データを作成する換算手段を設けたことを特徴とする。

【００１６】また、前記対象製品が新製品の場合に、前記換算手段による一覧データを基に当該新製品の名称を材料名とする成分データを生成して前記成分データベースに送信する登録手段を設けたことを特徴とする。

【００１７】あるいは、前記成分データベースの計算機に、検索した成分データの前記名称ごとの指定物質の含有比と対象製品の前記名称ごとの使用量（または比率）から、当該製品に含まれる指定物質名と含有比を算出し、前記対象製品を新たな材料名とする成分データを登録する登録手段を設けたことを特徴とする。

【００１８】本発明によれば、対象製品名を新材料名とみなした成分データが各製造サイトから直接に登録できるので、新製品や多種、多様な製品をいち早く取り込んで成分データベースが自己成長できる。また、対象製品に使用する材料名と使用量（または比率）を指定するのみで新たな成分データの登録が可能となるので、化学物質の非専門家にも登録が容易で、データベースの充実を容易にする。

【００１９】また、製品ライフサイクルの各過程で、ユーザが扱う製品の指定物質名と含有量を簡単に検索でき

るので、指定物質の網羅的な管理が容易になる。

【0020】図4に、本発明の成分データベースの概念図を示し、本発明の原理であるデータベースの自己成長作用を説明する。同図の中心は成分データベース107である。最初のうち、成分データベースはあまり充実したものではない。例えば、図中のサイトVの計算機システム401が自己の製品Hの材料Gの成分データを検索したくても、材料Gが登録されていない。

【0021】図示では、サイトXが製品Dの成分データとして、含有する指定物質名とその成分比を登録することから始まる。ここでの製品Dは基礎的材料で、その成分に指定物質名p、qなどが直接的に表われることが多い。次に、サイトYが自己の製品Eに使用する材料D（製品D）を指定して、製品Eの成分データを指定物質名p、qなどにより登録することができる。以下、同様にして、サイトZが自己の製品Fの成分データを材料Eを指定して登録し、サイトWが材料Fを指定して製品Gの成分データを登録する。

【0022】このように、製品を構成する材料の階層的な連鎖関係に従い、成分データベースが自己増殖的に充実され、それに伴ってユーザが扱う製品名や材料名による指定物質の検索が容易になり、PRTR等による環境対策を円滑かつ全面的に実現できる。

【0023】

【発明の実施の形態】本発明の一実施例を図面にしたがって詳細に説明する。図1に、成分データベースを含むネットワークシステムの構成図を示す。インターネットなどの通信ネットワーク106を介して、複数のサイトの計算機システム101、108、109と成分データベース107を接続している。ここでのサイトは、成分データベース106に対して登録や検索を行う全てのユーザを指し、登録に関しては主として製造事業所や研究機関、検索に関しては製品の製造から廃棄のライフサイクルに関わる各プロセスでのユーザや監督官庁などである。

【0024】成分データベース107は、材料名称フィールド107a、指定物質名称フィールド107b及び含有量フィールド107cからなる。ここでは、当初、材料A、B、Cの成分データとして、指定物質P、Qとその成分比が登録されている。以下では、サイトX101を例に、システムの構成と動作を詳細に説明する。

【0025】サイトXは製品Dを製造しており、その計算機システム101は材料データベース102、換算手段103、物質データベース104及び登録手段105を具備している。材料データベース102は、材料名称フィールド102a，量フィールド102bからなり、ここでは製品Dの材料成分として、材料Aが10000kg、材料Bが5000kg、材料Cが30000kgのデータを登録されている。なお、材料データベース102には、製品Dを製造する際には使用するが、製品Dに含まれない廃棄物や副生成物の登録はしていない。

【0026】換算手段103は、材料A、B、Cに含まれている指定物質を調査するために、通信ネットワーク106を介して成分データベース107を参照し、材料A、B、Cに含まれる指定物質名とその成分比（材料中の含有比率）を検索し、製品Dに含まれる各指定物質の含有量を算出、合計して、その結果を物質データベース104に書き込む。物質データベース104は指定物質名称フィールド104aと量フィールド104bからなり、製品Dに含まれる指定物質の名称と量が登録される。

【0027】登録手段105は、物質データベース104の情報を読み出し、製品Dに含有する指定物質の成分比を求め、成分データベース107に製品Dを材料名とみなした成分データを新規登録する。図示の材料Dに対する指定物質P、Qのデータは、この登録の結果である。

【0028】このように、様々な製品を作っている複数のサイトが、成分データベース107の登録情報を参照して自己の製品中の指定物質の成分データを求め、その結果を成分データベース107に登録することにより、登録データが充実していく。登録データが増加、例えば、材料Dの登録により、自己の製品に材料Dを使用するサイトでの利用が可能となるので、さらに登録数が増えるという、自己成長作用がある。

【0029】図2に、換算手段の処理フローを示す。換算手段103は、まず、材料データベース102から材料名称フィールドの1項目を選択する（s201）。次に、ネットワーク106を介して成分データベース107を参照し、材料名称項目フィールド107aから該当する材料名称を検索し、その指定物質名称フィールド107bから1項目の名称を、その含有量フィールド107cから含有量%をそれぞれ読み出す（s202）。例えば材料名称がAの場合、指定物質は1項目名のPのみであり，含有量は5%である。

【0030】次に、材料データベース102の材料名称項目102aに該当する量フィールド102cの値に含有量%を掛けた換算値を算出する（s303）。図1の材料A、指定物質Pの場合は、10000kg×5%=500kgになる。そして、物質データベース104の物質名称フィールド104aから指定物質Pに該当する欄を検索し、該当欄の量フィールド104bの数値に上記換算値を加算して書き込む（s304）。量フィールド104aの初期値はゼロとし、物質名称フィールド104aに指定物質名称が無いときは、新たにその名称の欄を生成する。図1の例では、まず指定物質Pと500kgが書き込まれる。

【0031】次に、成分データベース107の同じ材料名称に対して、まだ他に指定物質が登録されているか検索する（s205）。材料Aは物質Pのみであるが、材

料Bの場合は物質Pの他に物質Qが登録されている。他の指定物質がある場合は、その物質に関してｓ２０２以降の処理を繰り返す。この後、他の材料（例えばB）についても同様に、ｓ２０１以降の処理を繰り返す（ｓ２０６）。この結果、製品Dに関する指定物質Pは材料A中の500kg、材料B中の500kgが加算され、最終的に1000kgとなって物質データベース１０４に登録される。

【００３２】図3に、登録手段の処理フローを示す。登録手段１０５は、まず、材料データベース１０２の量フィールド１０２ｂの数値を集計し、製品Dのトータル量（ここでは、45000kg）を得る（ｓ３０１）。次に、物質データベース１０４より指定物質フィールド１０４ａの1項目（例えば、P）を選択し、量フィールド１０４ｂの換算値（例えば、1000kg)を読み出す（ｓ３０２）。そして、上記換算値を製品Dのトータル量（45000kg）で割り算し、上記指定物質（P）の含有量%（指定物質Pの場合、２．２%）を得る（ｓ３０３）。

【００３３】次に、成分データベース１０７をアクセスし、その材料名称フィールド１０７ａに製品Dの欄を追加し、同欄の指定物質フィールド１０７ｂに上記指定物質名称（例えば、P）を記入し、含有量フィールド１０７ｃに上記含有量%(例えば２．２%）を書き込む（ｓ３０４）。以上のｓ３０２～ｓ３０４の処理を、物質データベース１０４の指定物質名称フィールド１０４ａに登録されている全項目に対して繰り返す（ｓ３０５）。

【００３４】図5に、階層的な連鎖関係にある製品の成分データベースの一例を示す。例えば、製品Yフィルムはポリエチレンと塗料γの材料から構成される。ここで、ポリエチレンは指定物質の非該当品である。塗料γはαシンナーとβ樹脂の材料から構成されるが、塗料γの成分データは未登録である。したがって、Yフィルムの登録は塗料γの登録まで、待たされる。一方、αシンナーとβ樹脂の成分データはそれぞれ登録済である。つまり、塗料γのサイトが成分データベースに自社製品の登録を行えば、次の時点でYフィルムのサイトの登録も可能になる。

【００３５】このような連鎖が延々と持続されることによって、成分データベース１０７はその内容が充実され、多くのサイトに対する利用価値を高めていくことができる。上記の例では、各サイトの計算機システムの動作を一本の連鎖として説明したが、実際には登録される製品の成分が一つ追加されると、この製品を材料として使用する複数のサイトでの利用が可能になるので、結果として新たに登録される製品は複数となる。従って、本発明の成分データベースは幾何級数的に自己成長する可能性を内包し、データベースの急速な充実が実現できる。

【００３６】また、本実施例の成分データベースには、指定物質の非該当品の情報も併せて登録している。これにより、新製品の登録に際してサイト側は製品を構成する材料を入力するだけでよく、各材料が指定物質を含むかを判断する必要がない。

【００３７】上記の実施例で、成分データベースの登録機能はサイト側の計算機によった。しかし、この機能を成分データベース側に持たせることも可能である。図6に、別の実施例によるネットワークシステムの構成図を示す。図1のシステムとの相違は、換算手段１０３、物質データベース１０４及び登録手段１０５がサイト側ではなく、成分データベース側の計算機システム１１０に設けられていることである。

【００３８】図7は、図6のシステムの動作を示すフローチャートである。まず、サイトXから製品Dの物質成分の検索を開始する（ｓ７０１）。すなわち、製品Dとその使用量を通信ネットワーク１０６を介して成分データベース側の計算機システム１１０に伝送し、成分データベース１０７の検索を行う。製品Dが登録済であれば（ｓ７０２）、検索結果である製品Dの指定物質と含有比率が抽出され、換算手段１０３により含有量が算出され、物質データベース１０４に格納される（ｓ７０５）。

【００３９】一方、成分データベース１０７に製品Dが未登録であれば、成分データベース側からサイトXにその旨のメッセージが応答される。そこで、サイトXは製品Dを構成する材料A、B、Cの使用量（または割合）を伝送する（ｓ７０３）。換算手段１０３は成分データベース１０７の材料A、B、Cを順に検索し、含有している指定物質名と含有比から、製品Dに含まれる指定物質名毎の含有量を算出しその一覧表を作成して、物質データベース１０４に格納する（ｓ７０５）。なお、図示例は材料A、B、Cのすべてが指定物質であり、かつ登録されている場合の結果である。

【００４０】次に、登録手段１０５は製品Dが未登録の場合に、物質データベース１０４中に格納された製品Dの指定物質名単位の含有比率を求め、成分データベース１０７に登録する（ｓ７０６）。その後、サイトXに物質データベース１０４の製品Dの一覧表を伝送し、内容を消去する（ｓ７０７）。

【００４１】ｓ７０４の処理で、製品Dの材料A、B、Cの1つでも未登録の場合は、製品Dの登録ができない。そこで、製品Dに関する情報を図示していない一時記憶装置に保持しておき、成分データベース１０７に新たな材料の登録が行われる度に、登録手段１０５が登録処理を再起動することも可能である。最終的に、未登録材料情報の登録直後に、製品Dを材料名とする成分データの登録が実施される。

【００４２】

【発明の効果】本発明は、対象製品名を新材料名とみなした成分データが各製造サイトから直接に登録できるので、新製品や多種、多様な製品をいち早く取り込んで成分データベースが自己成長でき、その早期の充実が可能

になる。

【0043】また、対象製品の製品名あるいは使用する材料名を検索または登録の情報とするので、化学物質の非専門家にも成分データベースの利用が容易で、製品のライフサイクルのあらゆる場面で、指定物質の追跡と管理が可能になる。

【図面の簡単な説明】

【図1】本発明の一実施例による成分データベースシステムの構成図。

【図2】図1のシステムの換算手段の動作を示すフローチャート。

【図3】図1のシステムの登録手段の動作を示すフローチャート。

【図4】本発明の成分データベースの自己成長作用を示す説明図。

【図5】階層的な連鎖関係にある製品の成分データベースの一例を示す説明図。

【図6】本発明の別の実施例による成分データベースシステムの構成図。

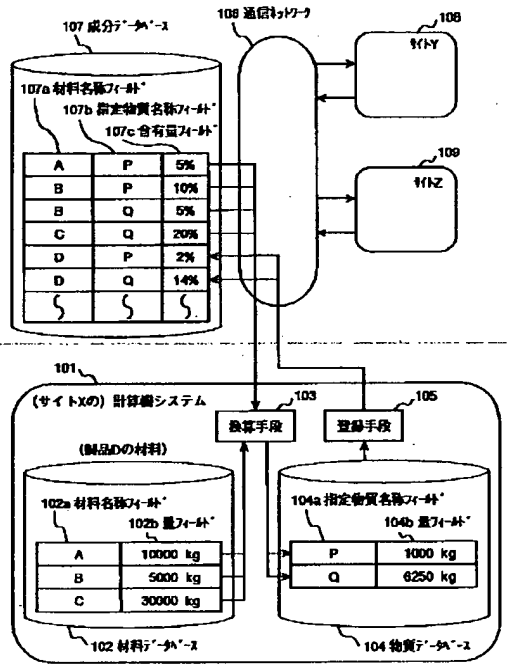
【図7】図6のシステムの動作を示すフローチャート。

【符号の説明】

101，108，109…計算機システム（サイト側）、102…材料データベース、103…換算手段、104…物質データベース、105…登録手段、106…通信ネットワーク、107…成分データベース、110…計算機システム（成分データベース側）。

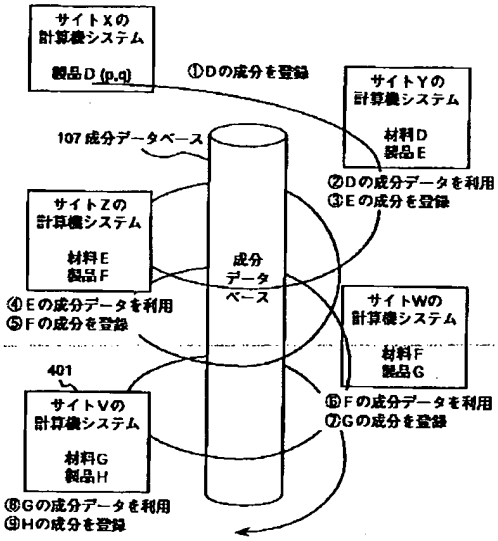
【図1】

図 1



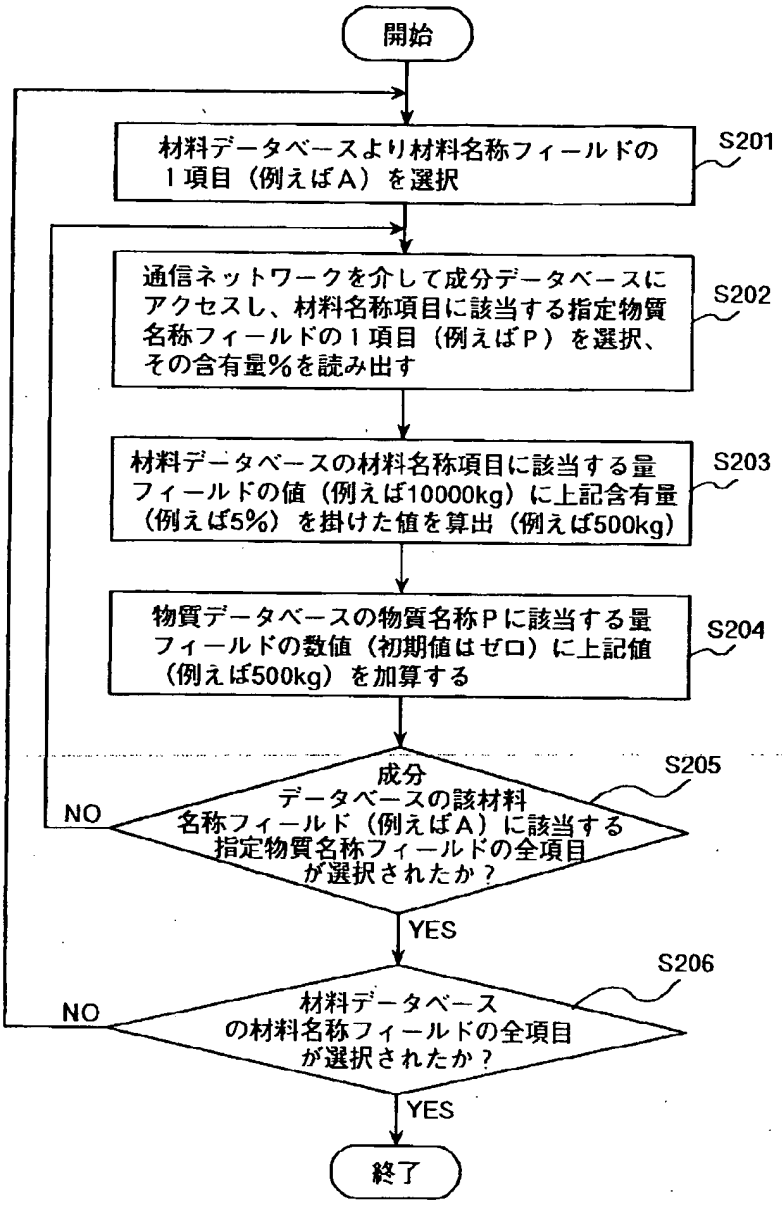
【図4】

図 4



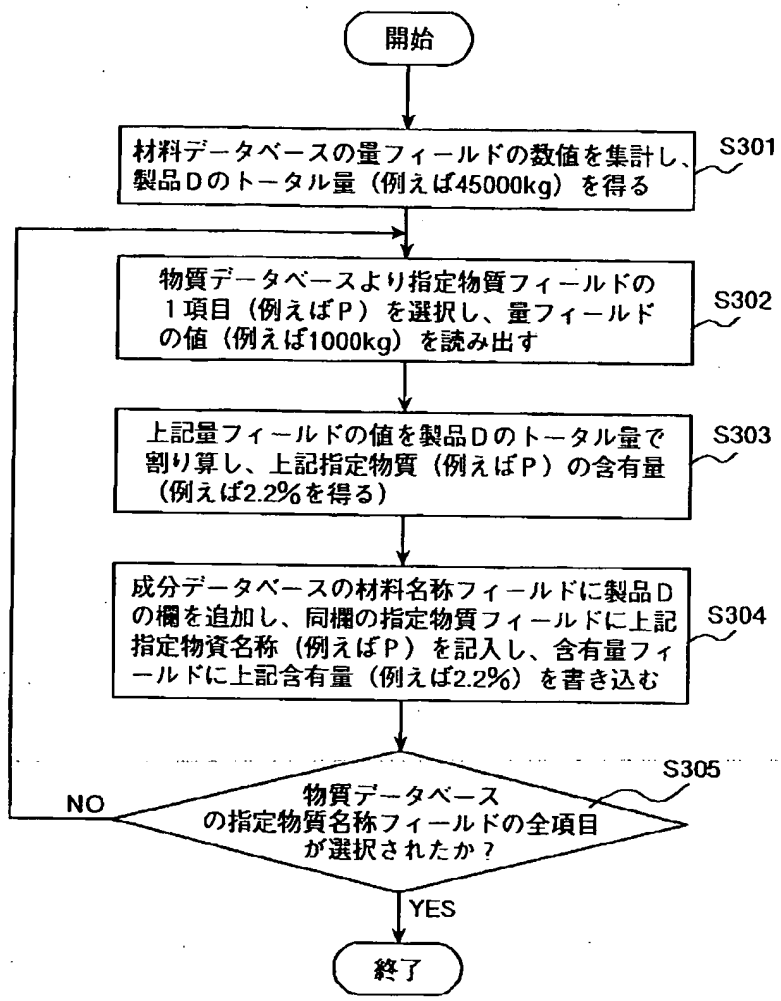
【図2】

図　2


開始
材料データベースより材料名称フィールドの１項目（例えばA）を選択
S201
通信ネットワークを介して成分データベースにアクセスし、材料名称項目に該当する指定物質名称フィールドの１項目（例えばP）を選択、その含有量%を読み出す
S202
材料データベースの材料名称項目に該当する量フィールドの値（例えば10000kg）に上記含有量（例えば5%）を掛けた値を算出（例えば500kg）
S203
物質データベースの物質名称Pに該当する量フィールドの数値（初期値はゼロ）に上記値（例えば500kg）を加算する
S204
成分データベースの該材料名称フィールド（例えばA）に該当する指定物質名称フィールドの全項目が選択されたか？
S205
NO
YES
材料データベースの材料名称フィールドの全項目が選択されたか？
S206
NO
YES
終了

【図3】

図　3


開始
材料データベースの量フィールドの数値を集計し、製品Dのトータル量（例えば45000kg）を得る
S301
物質データベースより指定物質フィールドの1項目（例えばP）を選択し、量フィールドの値（例えば1000kg）を読み出す
S302
上記量フィールドの値を製品Dのトータル量で割り算し、上記指定物質（例えばP）の含有量（例えば2.2%を得る）
S303
成分データベースの材料名称フィールドに製品Dの欄を追加し、同欄の指定物質フィールドに上記指定物資名称（例えばP）を記入し、含有量フィールドに上記含有量（例えば2.2%）を書き込む
S304
物質データベースの指定物質名称フィールドの全項目が選択されたか？
S305
NO
YES
終了

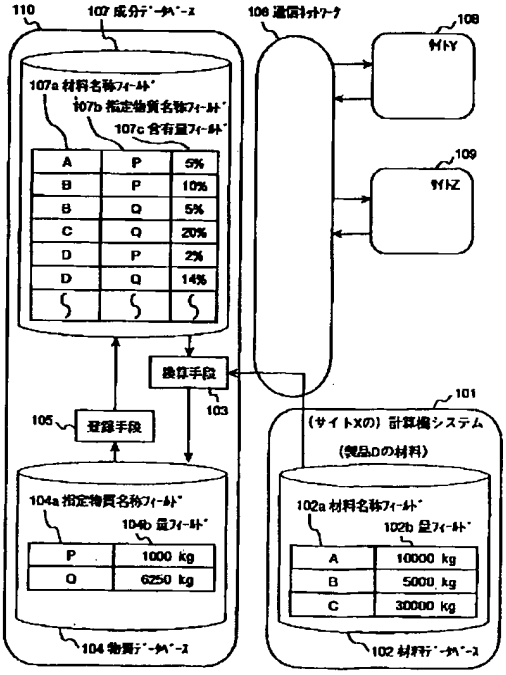
【図5】

図　5

製品名	含有される材料名	指定物質	含有率(%)
αシンナー	トルエン	トルエン	61
	キシレン	キシレン	16
	メチルイソブチルケトン	非該当	13
	イソプロパノール	非該当	10
β樹脂	ポリマー	シクロペンタジエン	80
塗料γ	αシンナー	?	24
	β樹脂	?	34
Yフィルム	ポリエチレン	非該当	98
	塗料γ	?	2

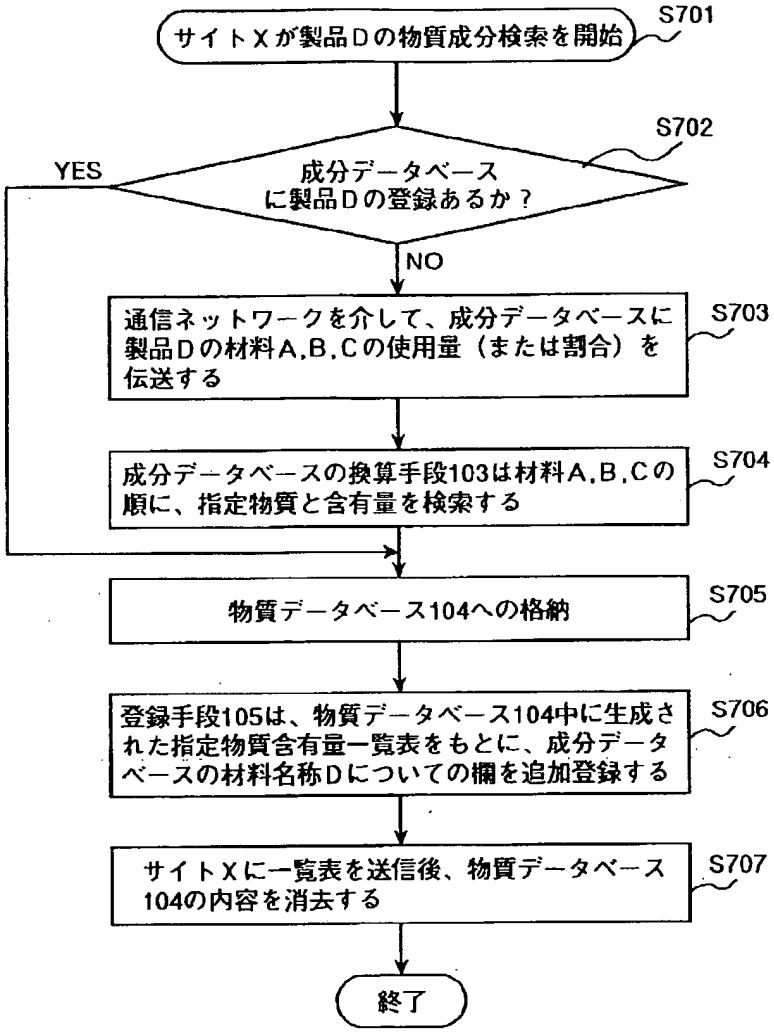
【図6】

図　6



【図7】

図　7


サイトXが製品Dの物質成分検索を開始
S701
成分データベース
に製品Dの登録あるか？
S702
YES
NO
通信ネットワークを介して、成分データベースに製品Dの材料A,B,Cの使用量（または割合）を伝送する
S703
成分データベースの換算手段103は材料A,B,Cの順に、指定物質と含有量を検索する
S704
物質データベース104への格納
S705
登録手段105は、物質データベース104中に生成された指定物質含有量一覧表をもとに、成分データベースの材料名称Dについての欄を追加登録する
S706
サイトXに一覧表を送信後、物質データベース104の内容を消去する
S707
終了

CLIPPEDIMAGE= JP02000029900A

PAT-NO: JP02000029900A

DOCUMENT-IDENTIFIER: JP 2000029900 A

TITLE: COMPONENT DATABASE, METHOD FOR RETRIEVING COMPONENT DATABASE AND
COMPONENT DATABASE SYSTEM

PUBN-DATE: January 28, 2000

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APPL-NO: JP10198834

APPL-DATE: July 14, 1998

INT-CL (IPC): G06F017/30

ABSTRACT:

PROBLEM TO BE SOLVED: To contribute to environmental measures by promoting the
enrichment of a component database for registering the incorporated states of
substances included in materials, generating adverse effects in environment and
specified by environmental pollutant removal/ transfer registration(PRTR) or
the like and easily managing the specified substances included in respective
processes from the manufacture of a product up to its disposal.

SOLUTION: A database 107 is referred to from each of plural sites 101, 108, 109
producing various products by the name of a product D or by

the names of
constitutional materials A to C of the product D when the product D has not
been registered yet, extracted specified substance names P, Q and their
contents in materials are obtained to acquire the specified substances included
in the product D and their contents (a substance database 104). When the
product D has not been registered yet, the specified substances P, Q including
D as a material name and their contents are registered in the component
database 107. Since a product can be easily retrieved from material names to
be used for the product, the system can be utilized in all sites where the
product is distributed and easily managed by the PRTR or the like. Since new
products can be registered by the utilization of the system, the substantiality
of the component database can be promoted in accordance with chain relation
between products and materials.

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